

Appl. No. 10/779,724  
Reply to Office Action of June 28, 2006

### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (original): A process for the resolution of each of the enantiomers of methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-c]thienopyridyl]-(2-chlorophenyl)acetate and salts thereof by diastereomeric crystallization comprising the use of a single optically active resolving agent and at least one solvent.

Claim 2 (original): A process according to claim 1 wherein the optically active resolving agent is (S)-10-camphorsulfonic acid.

Claim 3 (original): A process according to claim 1 wherein the solvent is selected from a polar organic solvent.

Claim 4 (original): The process of claim 3 wherein the polar organic solvent is a C2 to C6 ketone.

Claim 5 (original): The process of claim 4 wherein the polar organic solvent is selected from the group consisting of methyl ethyl ketone and methyl isobutyl ketone.

Claim 6 (original): A process according to claim 1 wherein the solvent is a non-polar organic solvent.

Claim 7 (original): A process according to claim 6 wherein the non-polar solvent is toluene.

Claim 8 (original): A process according to claim 1 further comprising recrystallization to an enantiomeric purity of about 99.5% or higher by dissolution in an organic solvent and recrystallization.

Claim 9 (original): A process according to claim 8 wherein the organic solvent is selected from the group consisting of toluene, methyl isobutyl ketone, methyl ethyl ketone or a mixture thereof.

Claim 10 (original): A process for the preparation of (S)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-c]thienopyridyl]-(2-chlorophenyl)acetate (S)-10-camphorsulfonic acid salt by diastereomeric crystallization of a mixture of the enantiomers of methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-c]thienopyridyl]-(2-chlorophenyl)acetate comprising the use

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of (S)-10-camphorsulfonic acid as the optically active resolving agent in the presence of at least one solvent.

Claim 11 (original): A process according to claim 10 wherein the solvent is a polar organic solvent.

Claim 12 (original): The process of claim 11 wherein the polar organic solvent is a C2 to C6 ketone.

Claim 13 (original): The process of claim 12 wherein the polar organic solvent is selected from the group consisting of methyl ethyl ketone and methyl isobutyl ketone.

Claim 14 (original): A process according to claim 10 wherein the solvent is a non-polar organic solvent.

Claim 15 (original): A process according to claims 14 wherein the non-polar organic solvent is toluene.

Claim 16 (original): A process for the preparation of (R)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-c]thienopyridyl]-(2-chlorophenyl)acetate (S)-10-camphorsulfonic acid salt by diastereomeric crystallization of a racemic mixture of methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-c]thienopyridyl]-(2-chlorophenyl)acetate comprising the use of (S)-10-camphorsulfonic acid as the optically active resolving agent.

Claim 17 (original): A process for resolving a diastereomeric mixture containing (S)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-c]thienopyridyl]-(2-chlorophenyl)acetate (S)-10-camphorsulfonic acid salt and (R)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-c]thienopyridyl]-(2-chlorophenyl)acetate (S)-10-camphorsulfonic acid salt, which comprises dissolving said mixture in a solvent or a solvent mixture and crystallizing (S)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-c]thienopyridyl]-(2-chlorophenyl)acetate (S)-10-camphorsulfonic acid salt.

Claim 18 (original): A process according to claim 17 wherein the solvent is selected from a polar organic solvent.

Claim 19 (original): A process according to claim 18 wherein the solvent is a C2 to C6 ketone.

Claim 20 (original): A process according to claim 19 wherein the solvent is selected from the group consisting of methyl ethyl ketone and methyl isobutyl ketone.

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Claim 21 (original): A process according to claim 17 wherein the solvent is a non-polar organic solvent.

Claim 22 (original): A process according to claims 21 wherein the solvent is toluene.

Claim 23 (withdrawn): The compound (S)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-*c*]thienopyridyl]-(2-chlorophenyl)acetate (S)-10-camphorsulfonic acid salt, substantially free of (R)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-*c*]thienopyridyl]-(2-chlorophenyl)acetate (S)-10-camphorsulfonic acid salt.

Claim 24 (withdrawn): The compound (S)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-*c*]thienopyridyl]-(2-chlorophenyl)acetate (S)-10-camphorsulfonic acid salt with an enantiomeric purity of about 98% or more.

Claim 25 (withdrawn): The compound (S)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-*c*]thienopyridyl]-(2-chlorophenyl)acetate hydrogen sulfate salt with an enantiomeric purity of about 98% or more, prepared by free basing the compound of claim 24 and further transformation into the hydrogen sulfate salt.

Claim 26 (original): A process according to any one of claims 1 to 22 further comprising the addition of seeds of the product.

Claim 27 (withdrawn): The compound of claim 24 wherein prepared by any of the processes of claims 1 to 15 and 17 to 22.

Claim 28 (withdrawn): The compound of claim 25 wherein prepared by any of the processes of claims 1 to 15 and 17 to 22.

Claim 29 (withdrawn): A process according to any one of claims 1, 10, 16 or 17 wherein a mixture enriched in (R)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-*c*]thienopyridyl]-(2-chlorophenyl)acetate (S)-10-camphorsulfonic acid salt is racemized to a racemic mixture of clopidogrel free base.

Claim 30 (withdrawn): The racemization of claim 29, wherein said racemization is carried out in the presence of a base.

Claim 31 (withdrawn): The racemization of claim 30, wherein said racemization is further carried out in an organic solvent.

Claim 32 (withdrawn): The racemization of (R)-methyl- $\alpha$ -5-[4,5,6,7-tetrahydro[3,2-*c*]thienopyridyl]-(2-chlorophenyl)acetate (S)-10-camphorsulfonic acid salt to a racemic mixture.